

ABSTRACT

A control system and method for controlling operation of a group of linear solenoids, which in turn control operation of an electrical load such as a solenoid or actuator, that exhibits increased responsiveness to a change in the target linear solenoid load current. A microcomputer cyclically generates and outputs pulse-width-modulated drive signals based on acquired drive data to establish clock periods. A switch connected between the microcomputer and the target load switchably connects the target load to a power source based on the drive data to selectively drive the target load. A feedback loop between the target load and the microcomputer provides actual target load drive data to the microcomputer, and the microcomputer adjusts the drive signals at a rate of not more than two times per cycle based on the actual drive data to converge the actual drive data to a calculated target load drive value. The present invention also provides an apparatus that prevents a drop in controller current control responsiveness due to signal response delay produced by feedback or the drive system. A converter converts input signals to digital values at a conversion cycle shorter than a cycle of the input signals. A data storage device sequentially stores digital values obtained from the converter, and a processor calculates a mean value to fetch the stored digital values for a cycle time of the input signals, and computes an arithmetic mean of the fetched digital values for target control purposes.